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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,021	04/26/2001	Masahiro Yamada	SON-2084	6932

7590 11/06/2003
RADER, FISHMAN & GRAUER, P.L.L.C.
1233 20th Street, NW, Suite 501
Washington, DC 20036

EXAMINER

SCHWARTZ, JORDAN MARC

ART UNIT PAPER NUMBER

2873

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)	
09/842,021	YAMADA ET AL.	
Examiner	Art Unit	
Jordan M. Schwartz	2873	

-- **The MAILING DATE of this communication appears on the cover sheet with the corresponding address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-114 is/are pending in the application.
- 4a) Of the above claim(s) 19-114 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 and 18 is/are rejected.
- 7) ☒ Claim(s) 11-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Rottmann.

Rottmann reads on these claims by disclosing the limitations therein including the following: an optical device (abstract) comprising a first optical portion made of a first optical material (Figures 2, 9 and 11, "member 6", column 4, line 64, column 5, lines 3-10); the first optical portion having a concavity (Figures 2 and 9, "member 6", and column 5, lines 39-45); a second optical portion disposed within the concavity (column 5, lines 39-45 re the refractive fluid within the concavity); the second optical material of a different refractive index than the first refractive material (column 6, lines 11-15); a third optical portion comprising a transparent third optical material (Figure 11, "127", column 10, lines 21-28 with "127" as a glass plate i.e. transparent); the first optical portion between the second and third optical portions (Figure 11 with first portion "6"

being between second portion of the fluid in the concavity and the third portion "127"). Rottmann further discloses the first optical portion having the first and second flat surfaces as claimed (Figures 2, and 9, "member 6"); a layer of optical material for sealing the concavity (Figures 2 and 9, "cover lens member "7" and column 5, lines 39-45); the concavity having a substantially rotational symmetric shape and is an arc (Figures 2 and 9). The refractive index of the first optical material will inherently be within the range of claim 5, this being reasonably based upon the first optical material being disclosed as glass (column 5, lines 3-6). Rottmann further discloses the index of refraction of the second optical material within the claimed range (column 6, the table of liquids).

Claims 1, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Scidmore et al patent number 3,915,547.

Scidmore et al reads on these claims by disclosing the limitations therein including the following: an optical device (abstract) comprising a first optical portion made of a first optical material (Figure 1, element "4"); the first optical portion having a concavity (Figure 1, element "4", the concavity formed by concave surface "r6"); a second optical portion disposed within the concavity (Figure 1, the portion of element "5" that is disposed within the concavity of element "4"); the second optical material of a different refractive index than the first refractive material (Table of column 3 re elements "4" and "5"); a third optical portion comprising a transparent third optical material (Figure 1, element "3", column 3, lines 57-63); the first optical portion between the second and

third optical portions (Figure 1); the first and second optical material within the ranges of claims 5 and 6 (Table of column 3 re elements "4" and "5").

Claims 1-2, 4-6, 10 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimizu et al.

Shimizu et al reads on these claims by disclosing the limitations therein including the following: an optical device (abstract) comprising a first optical portion made of a first optical material (Figures 4 and 6, "8", paragraphs 0036 and 0180); the first optical portion having a concavity (Figures 4 and 6, paragraphs 0036 and 0180); a second optical portion inserted into the concavity (Figure 6, re material "4" inserted in the concavity); the second optical material of a different refractive index than the first refractive material (paragraphs "0041" and "0069"); a third optical portion comprising a transparent third optical material (Figure 6, "171", paragraph 0181 re a "glass substrate"); the first optical material between the second and third optical portions (Figure 6). Shimizu further discloses the first optical portion having the first and second flat surfaces as claimed (Figures 4 and 6); the second optical material as liquid-like (paragraph "0041"); a layer of optical material for sealing the concavity (Figure 6, "2"); the concavity having a substantially rotational symmetric shape and is an arc (Figures 3, 4 and 6). The refractive index of the first and second optical materials will inherently be within the ranges of claims 5-6, this being reasonably based upon the types of materials disclosed. Shimizu et al further discloses two such optical devices bonded together so that the symmetry axes of the concavities meet the optical axis (Figure 4 embodiment); and the optical device further comprising a lens bonded as claimed (Figure 4

embodiment); and the lens shaped by the substantially rotational symmetric curved surface (Figures 4 and 6); having a flat surface (Figures 4 and 6 i.e. the flat surface between the concavities); the lens and device bonded so that the symmetry axis of the concavity and optical axis of the lens meet an optical axis (Figures 4 and 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rottmann.

Rottmann further discloses as is set forth above including two such optical devices bonded together so that the symmetry axes of the concavities meet the optical axis (Figure 15 embodiment); and the optical device further comprising a lens bonded as claimed (Figure 15 embodiment). Rottmann discloses as is set forth above but does not specifically disclose the liquid as an optical oil. However, Rottmann discloses the liquid being used to form a lens within a concavity (column 5, lines 39-45). The examiner takes Judicial Notice that it is well known in the art of optical devices for liquid lenses to be formed from optical oils to provide the required refractive properties. Therefore, it would have been obvious to person of ordinary skill in the art at the time the invention was made to have the optical liquid of Rottmann as an optical oil since Rottmann discloses the liquid being used to form a lens within a concavity and since it is

well known in the art of optical devices for liquid lenses to be formed from optical oils to provide the required refractive properties.

Claim 7-8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rottmann et al in view of Hawkins et al.

Rottmann et al discloses as is set forth above including the liquid being formed in concavities on a substrate to form a lens array (abstract) but does not specifically disclose the substrate and/or the liquid material as set forth in claims 7-8. Hawkins et al teaches that in an optical device that uses a liquid within concavities of a substrate to form a lens array (Figures 3H, column 1, lines 18-20, column 5, line 23), that the substrate and/or the liquid material can be formed of oxides, particularly including one of silicon nitride, titanium oxide, or tantalum oxide, for the purpose of providing a lens array of improved optical qualities (column 4, line 51, column 5, line 23, column 2, line 27 to column 3, line 29). Therefore, it would have been obvious to a person of ordinary skill at the time the invention was made to have the substrate and/or the liquid material of the lens array of Rottmann et al as being formed of one of the materials as claimed in claims 7-8, since Hawkins et al teaches that in an optical device that uses a liquid within concavities of a substrate to form lens arrays (Figures 3H, column 1, lines 18-20), that the substrate and/or the liquid material can be formed of oxides, particularly including one of silicon nitride, titanium oxide, or tantalum oxide, for the purpose of providing a lens array of improved optical qualities

Examiner's Comments

In the 103 rejection of claim 3 by Rottmann as set forth above, the examiner took Judicial Notice that it is well known in the art of optical devices for liquid lenses to be formed from optical oils to provide the required refractive properties. Applicant, in their arguments and amendment of August 4, 2003, requested a reference to support the Judicial Notice. Lewis et al patent number 3,598,475 is being cited herein to support the Judicial Notice to show liquid lenses being formed from optical oils to provide the required refractive indexes and to form low cost lenses (abstract, column 1, lines 10-41, column 3, lines 1-20, column 5, lines 14-22).

Response to Arguments

Applicant's arguments filed August 4, 2003 have been considered but, with respect to the rejected claims by Rottmann and Shimizu et al as set forth above, they are not persuasive.

The examiner is in agreement with applicant that the Torii et al reference fails to disclose the claimed third optical portion of claim 1 and therefore the Torii rejection has been withdrawn. The examiner, however, does not agree with applicant that Rottmann et al does not disclose this claimed third optical portion. Specifically, the embodiment of Figure 11 discloses this claimed third optical portion as set forth in the rejection above. With reference to Shimizu et al, applicant argues that this reference is not prior art based upon its filing date. Applicant is stating that the current invention has an effective filing date of April 27, 1997. It is believed that applicant is referring to its effective filing date of April 27, 2000 based upon its foreign priority. However, the foreign priority is not

in the English language and an English translation has not been provided. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Allowable Subject Matter

Claim 17 is allowed.

Claims 11-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: with respect to the allowable subject matter, none of the prior art either alone or in combination disclose or teach of the claimed limitations to warrant a rejection under 35 USC 102 or 103. Specifically, with respect to claims 11-16, none of the prior art either alone or in combination disclose or teach of the claimed optical system having the specific optical structure as claimed and specifically further with the first concavity larger than the second concavity the second and third flat surfaces as bonded, the second optical material with a refractive index greater than the first optical material, the fourth optical material with a refractive index greater than the third optical material and forming a solid immersion lens. Specifically, with respect to claim 17, none of the prior art either alone or in combination disclose or teach of the claimed optical system having the specific optical structure as claimed and specifically further with the system comprising a slider of an optical head attached to a swing arm.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jordan M. Schwartz whose telephone number is (703) 308-1286. The examiner can normally be reached on Monday to Friday (8:00-5:30), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached at (703) 308-4883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'JMS', is positioned above the typed name.

Jordan M. Schwartz
Primary Examiner
Art Unit 2873
October 23, 2003